

on the electrical power grid; classifying the second energy storage unit according to at least four energy thresholds including at least two inner thresholds and at least two outer thresholds, which define a capacity range of the second energy storage unit; determining whether the second energy storage unit is within a desired capacity range; and if the second energy storage unit is within the desired capacity range, using the second energy storage unit to substantially track changes in the regulation signal while the first energy unit remains at a substantially constant power output regardless of the changes in the regulation signal, wherein the regulation signal is tracked using the second energy storage unit if the second energy storage unit is within the desired capacity range.

2. The method of claim 1, wherein the first energy unit is an energy storage unit or an energy generation unit.

3. The method of claim 1, wherein if the second energy storage unit is not within the desired capacity range, adjusting the power output so that both the first energy unit and second energy storage unit track the changes in the regulation signal.

4. The method of claim 1, wherein the desired capacity range is determined by first and second energy thresholds of the second storage unit and wherein the first and second energy thresholds are dynamically modifiable.

5. The method of claim 4, wherein the first and second energy thresholds are modified based on characteristics of the regulation signal and based on feedback of a power output.

6. The method of claim 1, wherein the first energy unit includes one of the following: a hydroelectric dam, pumped storage, a combined cycle unit or a coal unit; and the second energy storage unit includes one of the following: a battery bank, a capacitor bank or a flywheel.

7. The method of claim 1, wherein the desired capacity range is between the at least two inner thresholds.

8. The method of claim 1, wherein the classifying includes determining whether the second energy storage unit is in a state of charging or discharging.

9. The method of claim 1, wherein if the second energy storage unit is not within a capacity range determined by the at least two outer thresholds, then either charging or discharging the second energy storage unit to bring it within the desired capacity range.

10. A method of providing power in a hybrid energy system, comprising: providing disparate energy devices including a first energy device and a second energy storage device; defining energy thresholds associated with the second energy storage device, wherein defining the energy thresholds includes defining at least two inner thresholds and at least two outer thresholds; dynamically modifying the energy thresholds in order to control a distribution of energy output between the first and second energy devices for providing a combined power output to an electrical power grid; determining whether the second energy storage device is within a desired capacity range as defined by the energy thresholds; and tracking a regulation signal using only the second energy storage device if the second energy storage device is within the desired capacity range.

11. The method of claim 10, further including determining a state of the second energy storage device as in a state of charging, discharging, or a neutral state and controlling an output of the second energy storage device based on the state.

12. The method of claim 10, further including tracking a regulation signal using both the first energy device and the second energy storage device only when the second energy storage device lacks energy to track the regulation signal on its own.

13. The method of claim 10, wherein the first energy storage device includes one of the following: a hydroelectric dam or a combined cycle units; and the second energy storage device includes one of the following: a battery or a flywheel.

14. A hybrid energy storage system, comprising: a first energy device and a second energy storage device, the first and second energy storage devices being of different types, that provide a combined power output for an electrical power grid; and a controller coupled to the first and second energy devices for adjusting a total power output of the first and second energy devices in response to a received regulation signal, the controller for adjusting only the second energy storage device to track the regulation signal while the second energy storage device is within a determined energy range, the first energy device remaining at a substantially constant power output regardless of the regulation signal while the second energy storage device is within the determined energy range; wherein the second energy storage device is classified according to at least four energy thresholds, the at least four energy thresholds including at least two inner thresholds and at least two outer thresholds, the at least four energy thresholds defining a capacity range of the second energy storage device.

15. The apparatus of claim 14, wherein the first energy device is a storage or a generation device and includes one of the following: a hydroelectric dam or a combined cycle units; and the second energy storage device includes one of the following: a battery or a flywheel.

16. The apparatus of claim 14, further including a memory for storing a flag that indicates whether the first energy device is in a state of assisting the second energy storage to charge or to discharge, or whether the first energy device remains neutral and the controller determines how to track the regulation signal based on the flag.

17. The apparatus of claim 14, further including a parameter selector coupled to the controller for dynamically modifying the energy thresholds associated with the second energy storage device, wherein the controller uses the energy thresholds for determining whether the second energy storage device is within the determined energy range.

18. The apparatus of claim 14, wherein if the second energy storage device is not within the determined energy range, adjusting the total power output so that both the first energy device and second energy storage device track the regulation signal.

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